

REMARKS

Claims 1-43 are pending and rejected in this application.

Responsive to the rejection of claims 1-5, 7, 8, 11-19, and 23-43 as being rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,602,757 (Haseley et al) and U.S. Patent No. 5,633,811 (Canada et al), Applicant respectfully traverses this rejection and submits that claims 1-5, 7, 8, 11-19, and 23-43 are now in condition for allowance.

Each of amended claims 1, 19, 29, 30, 36, and 40 essentially require the ability to generate a measured or calculated value based upon a sensor signal and the ability to control the mechanical press in accordance with the comparison of that value to a plurality of severity operating zones, each severity operating zone defining a relative level of potential long-term operating reliability for a mechanical press. Applicant submits that such an invention as set forth in each of independent claims 1, 19, 29, 30, 36, and 40 is neither taught, disclosed, nor suggested by Haseley et al, Canada et al, or any of the other cited references, alone or in combination.

Haseley et al '757 discloses a predictive vibration monitoring system that is able to process a sensor signal generated thereby into corresponding vibration data for the monitored machine. The microcontroller of the system is able to compare the corresponding vibration data with predetermined data to predict the present and future condition of at least one operating portion of the machine. Fig. 2 of Haseley et al shows an actual footprint or vibration signature which has been obtained under a known

machine state and from an individual sensor 12, having a known predetermined location. Each sensor 12 provides vibration data to produce a signal vibration signature. Overlying each vibration signal is an alarm level. The alarm level is employed by the vibration monitoring system to indicate predetermined maximum levels above which machine fault conditions may occur to the monitored machine. As such, Haseley et al effectively only discloses a single severity operating zone, only indicating maximum levels above which fault conditions may occur. This is unlike the present invention, which shows a plurality of severity zones, which together provide an increased ability to predict the long-term operating ability of the machine. Thus, Haseley et al '757 fails to teach or suggest the present invention as set forth in each of amended claims 1, 19, 29, 30, 36, and 40.

The Examiner contends that Haseley et al '757 teaches a system controlling the press in accordance with calculated values in relation to severity operating zones (column 7, lines 35-40, and column 8, lines 50-54) and that, where the general conditions of the claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. *In re Aller*, 105 USPQ233 (CCPA 1955). In those sections of column 7 and column 8 of Haseley et al referred to by the Examiner, Haseley et al '757 discloses the comparison of an operational vibration signature to at least one key frequency and a benchmark vibration signature to predict the present and future condition of the at least one rotative element. While such a prediction is based upon the known quantity of the at least one key frequency and the benchmark vibration

signature, there are no specific threshold values or levels defined against which the operational vibration signature is to be compared.

Specifically, the at least one key frequency and the benchmark vibrations signature of Haseley et al '757 do not represent a plurality of threshold or severity zones, each defining a relative level of a potential long-term operating reliability for the at least one rotative element. Furthermore, the alarm level defined in Fig. 2 and as set forth in column 5 at lines 22-30, does not constitute a disclosure or suggestion of a plurality of zones, each defining a relative level of potential long-term operating reliability. Since Haseley et al fails to teach or suggest a system which establishes a plurality of severity operating zones, it is not possible to state that discovering the optimum or working ranges for such zones involves only routine skill in the art. Accordingly, Haseley et al '757 fails to teach or suggest the present invention as set forth in each of independent claims 1, 19, 29, 30, 36, and 40.

Canada et al '811 discloses a hand-held data collector and analyzer system for use to collect vibration data from machines for use in producing maintenance requirements. However, Canada et al does not disclose or suggest comparing this collective data to any sort of severity operating zones. Therefore, Canada et al '811 fails to teach or suggest the present invention as set forth in each of claims 1, 19, 29, 30, 36, and 40, as amended, and is not able to overcome the shortcomings associated with Haseley et al.

Applicant further submits that the present invention addresses a problem not disclosed or suggested by either of Haseley et al '757 or Canada et al '811.

Specifically, the present invention is able to correlate vibration severity data to field service failure data in such a manner so as to develop specific threshold vibration severity levels. At certain definable vibration severity levels, stress magnification levels will be present that create increased maintenance severity problems for a press. As such, the relative life of a press is determinable from accumulative effects experienced over time. A press may withstand high vibration levels without major structural damage if the period is relatively short. Further, a press will certainly withstand low vibration levels no matter the time duration. Yet, in a magnified stress condition (e.g., medium to high vibration severity levels), accumulative structural damage can occur over a longer duration, whether run continuously or intermittently at such levels.

As such, the defining of various and specific threshold vibration severity levels to help predict the relative life of a press is a critical feature of the present invention.

Furthermore, the development of such specific threshold vibration severity levels as a means for measuring the relative life of a press based upon accumulative effects of various vibration severity levels over time represents a solution to a problem not addressed in the prior art. Since Applicant has demonstrated the criticality of the definition of a plurality of vibration severity zones, it is not appropriate to rely on case law as the rationale to overcome the shortcomings of Haseley et al (MPEP § 2144.04). Furthermore, the present invention provides a solution to the problem of predicting the

relative life of a press and does so in a manner not disclosed or suggested by Haseley et al '757, Canada et al '811, or any of the other cited references, alone or in combination.

For all the foregoing reasons, Applicants submit that claims 1, 19, 29, 30, 36, and 40, and those claims depending therefrom, are now in condition for allowance and hereby respectfully request the rejection thereof based upon Haseley et al '757 and Canada et al '811 be withdrawn.

Claim 6 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Haseley et al and Canada et al in view of U.S. Patent No. 4,302,813 (Kurihara et al).

However, claim 6 depends from claim 1, which is in condition for allowance for the reasons set forth above. Accordingly, Applicant submits that claim 6 is also in condition for allowance, the allowance of which is hereby respectfully requested.

Claims 9, 10, and 20-22 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Haseley et al and Canada et al in view of U.S. Patent No. 5,802,151 (Bevill, Jr. et al). However, claims 9 and 10 depend from claim 1, and claims 20-22 depend from claim 19. Since claims 1 and 19 are in condition for allowance for the reasons set forth above, Applicant submits that claims 9, 10, and 20-22 are also in condition for allowance. The allowance of which is hereby respectfully requested.

Furthermore, Bevill, Jr. et al discloses a telephone interface protection circuit and a modem incorporating the telephone interface protection circuit. Since Haseley et al does not disclose a system which expressly has a telephone circuit, Haseley et al does

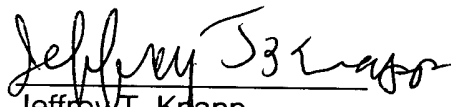
Application No.: 09/487,688
Amendment Dated July 21, 2003
Reply to Office Action dated: August 4, 2003

Attorney Docket No.: M-181

not present any systematic problem to which Bevill, Jr. et al could be directed. Further, Haseley et al does not present its data in a manner conducive to display by a series of LED's, contrary to the suggestion by the Examiner. Thus, there is no motivation to combine Bevill, Jr. et al with the primary reference Haseley et al.

5 If the Examiner has any questions or comments that would speed prosecution of this case, the Examiner is invited to call the undersigned at 260/485-6001.

Respectfully submitted,


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I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, PO Box 1450, Alexandria, VA 22313-1450, on: September 23, 2003.

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September 23, 2003
Date